2019 HBCU/MIHE Internship Project Guide

1. Environmental Analysis Unit/Public Involvement, Community Studies, & Visualization
Summer Interns will work with the Public Involvement team on multiple projects supporting various modes of transportation (e.g. Highways, Rail, Aviation, Bicycle & Pedestrian, and Ferry).
Requirements: Majoring in Planning, Communications, or Engineering. **Location:** Raleigh, NC

2. Right of Way
Summer Interns will work on the following projects: bridge, rural/urban property, interstate, and safety. Interns will work with Right of Way agents on onsite visits, help with organizational and archival duties, and other duties as requested. **Requirements:** Majoring in Business Management or Engineering. **Location:** Durham, NC

3. Division of Information Technology – Transportation Project I
Summer Interns will support the information technology team with developing code, generating reports, documenting requirements, and testing upcoming software releases. Interns will also assist with the deliverables for the project life cycle. **Requirements:** Graduate IT major, students majoring in Engineering or Communications with an IT interest. **Location:** Raleigh, NC

4. Bicycle and Pedestrian Division
Summer Interns will review bike and pedestrian plans to gauge implementation and evaluation of objectives and performance measures. Review/revise Pedestrian and Bicycle Infrastructure Network (PBIN) geodatabase to identify discrepancies, errors,

missing data, etc. This may also involve active data collection and solicitation efforts. Research of various bicycle and pedestrian treatments ad their application across the state. PBIN is a geodatabase of existing and pedestrian bicycle and pedestrian facilities. **Requirements:** Majoring in Planning, GIS Transportation, Engineering, or related field. **Location:** Raleigh, NC

5. Technical Services/Photogrammetry Unit

Summer Interns will develop an ArcGIS Database with the historic NCDOT Aerial Photography limits and NCDOT project mapping limits for 2013-2018. This process will include creating and tagging MicroStation design files that show boundary limits for historic data using Image Station Photogrammetric Manager (ISPM) project files and Bentley GeoPak software. These design files will then be organized by year of photography and group them into an ArcGIS geodatabase to be used as a Digital Index and Archive Library of NCDOT project holdings. The project also includes helping with development of the ArcGIS Feature classes and the future maintenance workflow for this data base. The attributes of the database will include but not limited to the photography mission number, date of photography, project TIP number, project description, county name, ground sample distance (GSD), type of mapping camera, mapping product type, delivery date and customer name. **Requirements:** Geomatics major or Graduate Student ArcGIS experience. **Location:** Raleigh, NC

6. Office of Civil Rights - Equal Employment Opportunity Program (EEO) Project I

Summer Interns will aid with marketing- press releases, social media, newsletter content, articles etc. Assist with coordinating components of the Re-Entry and Veterans Special incentive. Work with local workforce partners to help offset barriers to employment and training opportunities for OJT trainees and academy participants. Assist with day to day office task, such as updating program records, attending meetings, preparing correspondence, and providing some administrative support. **Requirements:** Majoring in Social Sciences (Social Work, Sociology, Criminal Justice, Psychology). **Location:** Raleigh, NC

7. Public Transportation Division

Summer Interns will compile a checklist of items from analysis of Metropolitan Transportation Plans (MTP) including, but not limited to Transportation Demand Management items such as (High Occupancy Vehicle Lanes, Bus on Shoulder, Bus Rapid Transit, signal prioritized lanes) Van Pool strategies, and rideshare strategies. These strategies are implemented for relieving congestion and/or decreasing emissions. Analysis of the MTP plans will allow NCDOT to understand to what level and strategies Urban areas are planning long-term to allow leveraged support or funding for these efforts. North Carolina's population according to the North Carolina's Office of State Budget Management has projected growth from 2020-2035 emissions in these areas. Strategies like the ones listed above mitigate the congestion and support North

Carolina's travelers in getting to their destination in a reasonable time. **Requirements:** Ability to conduct detailed Analysis, Engineering, Graduate Degree or other analysis education. **Location:** Raleigh, NC

8. Governance Office

The Governance Office is responsible for structuring and facilitating the North Carolina Board of Transportation, the North Carolina Turnpike Authority Board, the North Carolina Global TransPark Authority Board and North Carolina Ports Authority Board. It oversees an agency-wide standardized policy process and leads process improvement projects across the entire department using the Lean Six Sigma methodology. The summer intern will be introduced to all three working pillars of the Governance Office, acquiring an understanding of process improvement, engaging in board processes and oversight of policy implementing. **Requirements:** Public Administration, Policy, Public relations, Political Science, English, Economics, Mathematics, with proficiency in Microsoft Office (Excel, Word, PowerPoint) and may have proficiency in JMP, Visio. **Location:** Raleigh, NC

9. Office of Civil Rights – Business Opportunity and Workforce Development (BOWD) Unit

Summer Interns will assist the Business Opportunity and Workforce Development Unit with providing education, training and technical assistance to disadvantaged enterprise firms, community partners and internal and external stakeholders. Activities and tasks include but are not limited to, developing marketing materials and campaigns for BOWD programs, developing and managing social media and communication campaigns on behalf of BOWD Unit including, potentially, a podcast production and sound engineering. Updating and building BOWD website to include weekly trainings and events. Assisting with Community Engagement and other outreach events. Venue site visits for BOWD events. Building and strengthening relationships with potential DBE firms, community partners and internal and external stakeholders. Participating in meetings with government agencies, community partners, DBE firms, potential consultants and DOT contractors. In addition, interns will: assist the Business Opportunity and Workforce Development Unit with providing education, training and technical assistance to disadvantaged enterprise firms, community partners and internal and external stakeholders. **Requirements:** Business, Marketing, Communications, Human Development/Services, Engineering, Liberal Arts, Criminal Justice. **Location:** Raleigh, NC.

10. Purchasing Unit

Summer interns will assist with the revision of purchasing manual, updating of information on website, documentation of purchasing procedures, assisting in SAP data clean-up **Requirements:** Business Management major, Supply Chain/Logistics major, etc. **Location:** Raleigh, NC

11. Office of Chief Deputy Secretary
Summer Interns will work with the Chief Deputy Secretary and other NCDOT top management staff on research and special projects assigned directly by the office of the CDS. **Requirements:** Master's degree in a discipline related to the area of assignment; or equivalent combination of training and experience. **Location:** Raleigh, NC

12. ITS & Signals Management Unit – Transportation Mobility & Safety Division
Summer Interns will research ITS operational strategies that may assist with alleviating road congestion. Assist in ITS project final inspections to verify conformity with contract and project specifications. Participate in ITS Planning activities with Division staff and Metropolitan Planning Organizations (MPOs). Involvement in ITS design projects involving CADD use, dynamic message signs, freeway surveillance, fiber optic and cellular communications equipment, 2018 Standard Specifications, cost estimates, and project special provisions. **Requirements:** Junior or Senior Engineering major. **Location:** Raleigh, NC

13. Division of Motor Vehicles, License & Theft Bureau
Summer Interns will work with the designing and building of a new law enforcement case management system. Conduct legislative bill research and analysis. Internal Units workflow efficiency study. Design and implement a new agency procedure manual. Assist with preparation for Commission on Accreditation for Law Enforcement Agencies (CALEA) Accreditation onsite. Setup and implementation of a License plate reader program. Setup and implementation of an auto theft program. **Requirements:** All majors accepted, preference given to students with majors in criminal justice, business administration, public administration and information technology. **Location:** Raleigh, NC

14. Roadway Design Unit
Summer Interns will be involved in the design and review of roadway design plans. Interns would be given an opportunity to develop Computer Aided Drafting Design (CADD) skills, as we all, Open Roads Designer (3-D design software) exposure. Typical projects involve bridges, road widening, and interchange design. **Requirements:** Majoring in Civil or Electrical Engineering. **Location:** Raleigh, NC

15. Department of Motor Vehicles /Training & Development/School Bus & Traffic Safety
Summer Interns will modernize SBTS forms using Word and Excel to allow easier revisions and streamline processing, update/revise DEPS Manual, update/revise SBTS Supervisors Manual, update/revise SBTS SOPS, and remove outdated filling and scan as needed to meet retention requirements. Interns will have the opportunity to shadow staff at headquarters and in the field. In addition, they will have the opportunity to work with field personnel and the chance, if they desire, to obtain a Class B CDL w/ P

& S endorsement (they would have to pay for the permit and license). **Requirements:** All majors welcome, seeking students with high level of expertise at Excel, Word, Access, Scanning, Communications and Grammar, Office Equipment (helpful). **Location:** Raleigh, NC

16. Office of Civil Rights – Disadvantaged Business Enterprise Certification
Summer Interns will learn about the DBE program. They will participate in site visits and in making certification decisions. They will also assist us as train firms about the DBE program and the certification process. **Requirements:** Majoring in Business or Engineering. **Location:** Raleigh, NC.

17. Office of Civil Rights – Executive Management Team Policy Intern
Summer Interns will assist and organize Office of Civil Rights' Advisory Council and subcommittees, assist and organize Diversity Spend Committee meetings, assist with policy marketing needs - press releases, social media, newsletter content, articles etc., assist with developing policies, procedures and legislative actions, attend legislative meetings to monitor progress on bills introduced on transportation related issues, assist with Research project, "Evaluating the Office of Civil Rights" and monitor milestones, and assist with Emergency Management long term project. Special projects as assigned. **Requirements:** Business or Public Policy/Government. The ideal candidate would have an interest in learning about transportation initiatives, public policy, government relations, project management, and strategic planning. **Location:** Raleigh, NC

18. Office of Civil Rights–Equal Employment Opportunity Program (EEO) Project II
Summer Interns will work on building, managing, and reporting on NC DOT recruitment campaigns and helping improve our processes relating to our ability to attract, hire, and retain diversity candidates. In this role they will be tasked to manage communications campaigns, update web pages, build social media, lead storytelling efforts (podcast production and sound engineering) and build strengthened relationships with potential candidates and NCDOT Brand ambassadors. Interns may be asked to conduct qualitative and quantitative data analysis on candidate, employee, and other HR-related data. They may be tasked with sourcing potential candidates from a variety of sources including social media, resume databases, conference attendee lists, etc. to identify new potential talent. Interns may be asked to participate in customer meetings including other government agencies including Division of Workforce Solutions, Department of Public Safety, as well as with associations such as the Hispanic Chamber of Commerce, NAACP, higher education, and others to identify talent pools and build a stronger talent supply chain to NCDOT and potentially contractors to NCDOT.
Requirements: Majoring in Communications, Marketing, Liberal Arts, human resources, and/or data analytics. **Location:** Raleigh, NC

19. Office of Civil Rights – Marketing & Communications

Summer Interns will develop content for social media. Garner users to follow/like NCDOT Office of Civil Rights. Interns must possess the ability to plan, organize, and handle multiple functions simultaneously and communicate clearly and professionally, both verbally and in writing. Assist with collecting articles and editing Bi-monthly nMotion newsletter. Attend sponsored events to post/share to social media in real time, take pictures, or record video. Maintain database of contacts. Work on spotlight stories of small-business success. Compile editorial deadline calendar. Assist with administrative tasks related to communications.
Requirements: Communications/Marketing Major and social media skills. **Location:** Raleigh, NC

20. Division 3, District 3 – Division of Highways
Summer Interns will compile documentation for job site inspections, research existing projects, perform supervised on-site inspections for encroachment and driveway permits, and assist in documenting deficiencies while on job site inspections. **Requirements:** Majoring in Engineering. **Location:** Wilmington, NC

21. Transportation Planning Division (TPD)
Summer Interns will assist TPD team with general Transportation Planning and Engineering tasks including, traffic forecasting, travel demand modeling, traffic analysis, deficiency analysis, GIS mapping and data analysis. Written and oral presentation of the data and recommendations, and public speaking and presentations**.**
Requirements: Majoring in Engineering or Planning. **Location:** Raleigh, NC

22. Division 14 – Division of Highways
Summer Interns will assist project managers on various Division managed projects, assist Division staff with accounting procedures, or assist Division staff with environmental documents and procedures.
Requirements: Majoring in Engineering/Engineering Technology, Construction Management, Accounting, Biology, and Environmental Sciences. **Location:** Sylva, NC

23. Division of Planning & Programming
Summer Interns will work with Power Bill maps by updating Item P and databases. Interns will also update trend analysis graphics. **Requirements:** Proficient in GIS, Excel, and databases. **Location:** Raleigh, NC

24. Roadside Environmental - Aesthetic Engineering Section
Summer Interns will work on the Aesthetic Engineering team on Scenic Byway Assessments, Corridor Aesthetics, and Aesthetic Detailing & Standards. **Requirements:** Majoring in Landscape Architecture. **Location:** Raleigh, NC

25. Materials & Tests Unit
Summer Interns will serve as an analyst looking at laboratory testing procedures,

material tests results, and QA/QC systems. The individual will develop Laboratory testing Standard Operating Procedures (SOPs) and Quality Assurance/Quality Control (QA/QC) protocols to ensure Laboratory Accreditation standards are met. This position may also perform extracting, cleaning, and interpreting of laboratory testing data by utilizing strong mathematical, data mining, database, and statistical experience to evaluate material testing trends and failures. **Requirements:** Majoring in Chemistry or Chemical/Civil/Industrial/Materials/Mechanical Engineering. **Location:** Raleigh, NC

26. NC Department of Information Technology (DIT) – Transportation Project II
Summer Interns will support the team with developing code/ generating reports/documenting requirements and testing upcoming software releases. If new project requests are received the intern will assist with the deliverable for the project life cycle. **Requirements:** Majoring or keen interest in Information Technology. **Location:** Raleigh, NC

27. Division of Aviation – UAS Program
Summer Interns will support the UAS Program Office by assisting in UAS research, operation planning and execution. Attend workshops and support education and outreach for drone hobbyists. Assist in training for NCDOT UAS pilots. Help edit and review policy and procedure.
Requirements: Majoring in Engineering, Communications, Accounting, Business, IT, Transportation, or Construction. **Location:** Raleigh-Durham International Airport, Raleigh, NC

28. Division of Aviation – Harnett Regional Jetport
Summer Interns will conduct marketing and communications. Work on reports for use by airport staff and county government. **Requirements:** Majoring in Engineering, Communications, Accounting, Business, IT, Transportation, or Construction. **Location:** Erwin, NC

29. Division of Aviation – Asheville Regional Airport
Summer Interns will work with the finance department to implement a new accounting system. Interns will assist with the logistics of new runway construction planning. **Requirements:** Majoring in Engineering, Communications, Accounting, Business, IT, Transportation, or Construction. **Location:** Fletcher, NC

30. Division of Aviation – Fayetteville Regional Airport
Summer Interns will update and manage Federal Aviation Regulation (FAR) Part 139 training. Review lease agreements to assess Consumer Price Index (CPI) and the status of insurance certificates. Analyze Uber/Lyft proposal. Support marketing efforts. **Requirements:** Majoring in Engineering, Communications, Accounting, Business, IT, Transportation, or Construction. **Location:** Fayetteville, NC

31. Division of Aviation - Albert J. Ellis Airport

Summer Interns will research and draft a Minimum Standards Report. Conduct a user survey. Gather and compile statistics and present report. Day-to-day administrative operations. Liaise with the airport police or fire department. Assist in presenting to economic development associations. Develop ways to reduce cost and waste at the airport. Assist in ways to promote the Art in the Airport
Program. **Requirements:** Majoring in Engineering, Communications, Accounting, Business, IT, Transportation, or Construction. **Location:** Richlands, NC

32. Safety & Risk Management

Summer Interns will work with the Safety & Risk Management team on Industrial Hygiene, Indoor air quality sampling, noise sampling, construction safety, and site audits. Intern must have a valid driver's license. **Requirements:** Majoring in Occupational Safety & Health, Industrial Hygiene, Public Health, or Chemistry. **Location:** Raleigh, NC

33. NC Division of Information Technology (DIT) – Division of Motor Vehicles (DMV) Systems – Traffic Records Systems

Summer Interns will assist TRS team supports the DMV and Division of Highways (DOH) in promoting highway safety and providing excellent customer service, enforcing motor vehicle laws, and maintaining the integrity of official DMV records. Work opportunities include assisting with Information Technology application maintenance activities or small project primarily using Java language and Oracle database.
Requirements: Majoring in Engineering or Computer Science, preferably with one or more of the following programming courses: Java, .NET and Oracle. **Location:** Raleigh, NC

34. Value Management Office

Summer Interns will develop an Access database and populate it with lessons learned/recommendations gathered from across the department. Interns will have an opportunity to attend and participate in Value Engineering studies, attend constructability reviews, process product evaluations, review Value Engineering change proposals, develop Value Engineering recommendations, and conduct site visits for Constructability Reviews and product Installations.
Requirements: Majoring in Civil Engineering or Computer Science. **Location:** Raleigh, NC

35. Structures Management Unit – Project I

Summer Interns will work on load rating existing structures checking designs and drafting and checking drafts of new structures. **Requirements:** Majoring in Engineering.
Location: Raleigh, NC

36. Structures Management Unit – Project II
Summer Interns will work on reviewing and approving contractor submittals for budgets under construction. **Requirements:** Majoring in Engineering. **Location:** Raleigh, NC

37. Logistics & Freight Division
Summer Interns will assist in project management and completion - including data collection, report/presentation preparation, attending meetings, both within NCDOT as well as with external parties. Examples of upcoming projects - research projects LFD is overseeing study of Greensboro Intermodal rail yard and developing an e-Commerce platform at NC Global TransPark. Projects are constantly emerging. **Requirements:** Rising senior in undergraduate (BSBA or transportation (non-engineering) or graduate student preferred. **Location:** Raleigh, NC

38. NC Department of Information Technology (DIT) Transportation – Information Security Office
Summer Interns will be tasked with introductory information security operations focused on augmenting basic security operations functions within the Information Security Office and providing intern staff an opportunity to learn about IT Risk Management and Security concepts and training. By the conclusion of the internship, the interns will have learned fundamental IT risk management and security concepts, operations functions, and tools. Majoring in Management/Computer Information Systems or Computer Science. Minors/Disciplines in Information Technology or Information Security. **Location:** Raleigh, NC

39. Enterprise Applications & Testing Services (ES)
Summer Interns will learn and develop skills in information technology on Software and Hardware, provide hands-on experience with an applications development/integration team, support team, and testing team. Summer Interns will collaborate on developing functional test plans from requirements through design, executing test cases and preparing the necessary documentation. Execute test cases based on detailed instructions to ensure that validations are in place to catch any exceptions and analyze the data for defects or bugs. Perform regression testing for all new software releases. Assist with quality assurance test efforts where appropriate and applicable. Receive, log and fully document requests for support from the service desk, other service delivery staff and/or users. **Requirements:** Majoring in Computer Science, Computer Information Systems, Computer Engineering, Information Technology (IT), or other IT related fields. **Location:** Raleigh, NC

40. IT DMV – State Titling and Registration Systems (STARS)
Student Intern will be exposed to Cobol Programming Language and DB2 to assist the

STARS team with a variety of projects.
Requirements: Majoring in Information Technology. **Location:** Raleigh, NC

41. Technical Services/Location & Surveys
 Student intern will be conduct surveying and mapping for various highway projects. Work can include collection of field data (outside) and processing/mapping of field data (inside) using Bentley Microstation (CAD). **Requirements:** Majoring in Geomatics, Engineering, or GIS major preferred. **Location:** State wide